Developing a Transport Vision for Hertfordshire

A review of the long-term challenges to 2050

ARUP  AECOM  Hertfordshire
Developing a Transport Vision for Hertfordshire:

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Foreword

Over the last 65 years, Hertfordshire’s residents have experienced unprecedented change. This unique period of time has seen the construction of the M25, M1 and A1(M) motorways, the building of New Towns and Garden Cities, the growth of Luton and Stansted airports as major international gateways on the county’s doorstep, and the rationalisation of the rail network through the Beeching cuts of the early 1960s.

This period of time has seen car ownership in Hertfordshire increase from only one in 10 households in 1950, to nearly nine in 10 households now. In the same time period, rail travel from Hertfordshire stations has increased so much that nearly 200,000 people now travel daily into London from stations within Hertfordshire. The demand for travel across Hertfordshire means that the county’s transport system is approaching or has exceeded capacity in many places.

This rate of change shows no sign of abating, indeed, Hertfordshire population growth forecasts are predicted to accelerate through to 2050.

On our southern border London is forecast to grow by two million people by the early 2030s, and our neighbours in Essex, Cambridgeshire, Bedfordshire, Luton and Buckinghamshire are also planning for significant growth. Supporting the wide range of small, medium and large businesses in the county, with a mix of those providing services to local residents and those operating internationally, will play an important role in ensuring Hertfordshire continues to be an attractive place to do business. At the same time transport will play an important supporting role in enabling new businesses to develop and grow throughout the county, with urban and rural areas providing some ideal locations for businesses to access their markets and have the ability to recruit appropriately trained and educated employees.

Hertfordshire is home to half a million jobs, and the county is a key player in a global economy. Our £25bn economy is the fifth largest of all the LEP areas in the UK (outside of London). We need to sustain this international competitiveness and jobs for local people by providing an environment where business can thrive. Supporting the wide range of small, medium and large businesses in the county, with a mix of those providing services to local residents and those operating internationally, will play an important role in ensuring Hertfordshire continues to be an attractive place to do business. At the same time transport will play an important supporting role in enabling new businesses to develop and grow throughout the county, with urban and rural areas providing some ideal locations for businesses to access their markets and have the ability to recruit highly-skilled employees.
At the same time, Hertfordshire must remain an attractive place to live, maintaining its rich and varied natural and built environments. The County Council has set out a Corporate Plan¹ which pledges to ensure that Hertfordshire residents have opportunity to prosper, thrive, be healthy and safe and take part.

Transport plays an important role in helping local communities to access important everyday services; however, the extent to which people have to rely on the car to access these services places additional pressure on to the network and disadvantages those who do not have access to a car. Understanding the future for residents within the county and how they can access these services, be this through easing access to making journeys easier or reducing the distance that has to be travelled, is a key objective of the Vision. The planning of future communities will also play an important role in reducing the future impact of additional traffic growth, where through working with a wide variety of partners new developments will meet the needs of new and existing residents.

Over the last few years, the county has punched above its weight in securing significant levels of funding from Government and other sources to deliver a transport network that supports the aspirations of local people and businesses.

However, in transport delivery terms, we are approaching a crossroads. By 2020, we will have largely delivered on our existing Local Transport Plan and it’s now the time to plan for the next generation of transport improvements to support future prosperity and growth. We plan to do this by developing a long-term Transport Vision.

We need your help to develop the future Transport Vision for Hertfordshire. We want to do it properly, by firstly engaging with our partners and communities to identify our collective challenges before developing solutions to address them. Achieving this will provide the key starting point for engaging with Government and other partners to make the case for securing funding for infrastructure within the county.

This document is designed to initiate that discussion, and we invite you to join us on the journey...

¹ Details of the County Council’s corporate plan can be found online at: www.hertsdirect.org/corporateplan or by calling 0300 123 4040
A review of the long-term challenges to 2050
Executive Summary

Transport plays a key role in maintaining Hertfordshire as a place where people want to live and work. This report highlights the key challenges that will impact on the future of Hertfordshire and sets out how these challenges relate to the transport network looking forward to 2050.

The wider challenges for Hertfordshire are articulated in chapter 3 through a forecasting report by Arup. A methodology has been used that identifies a ‘known Vision’, based on existing strategies, trends and forecasts, and then sets out ‘best’ and ‘worst’ case scenarios that are seen as either positive or negative deviations from the known vision.

Over the next 35 years Hertfordshire is likely to see a variety of changes that can be broadly categorised as: social, technological, economical, environmental, and political (known as a STEEP analysis). The scenarios explore the key changes within each of these categories and how they will manifest themselves as transport challenges.

The key STEEP changes that are likely to be seen within the county include a wide range of factors, but most notably population and pressure for housing and employment growth; an aging population as an increasing number of people live beyond 60 and 80; a need to tackle obesity and the wider effects of inactive lifestyles; changing living styles and the impact of technology; and, the extent to which people are able to engage with political issues and process.

These issues each bring with them a number of transport challenges that will be important to address to ensure that transport plays a full role in supporting the county’s future growth, and to maximise the opportunities for residents and businesses in Hertfordshire.

The report identifies particular issues where transport will play a key role including the extent to which it:

• Enables or restricts a person’s ability to be able to access key services, including access to employment or education;
• Supports the operation of businesses by reducing delay and unreliability on the network;
• Mitigates severance and supports local communities and the natural and built environment;
• Is able to adapt or mitigate the impacts of extreme weather events;
• Supports people in being active as part of daily lifestyle;
• Plays a role in sustainable development in and around the county;
1. Introduction
This section sets the scene for this discussion document.

The County Council adopted its existing Local Transport Plan (LTP3) in April 2011; however, the national context for transport and planning has changed considerably since then. The delivery of economic growth, in the form of housing and jobs, is much higher on the national Government’s agenda, and the national and transport planning context has evolved significantly to reflect this.

At a local level, district-led Local Plans have also evolved since 2011, and future pressures from outside the borders of Hertfordshire are becoming increasingly visible, for example the expected growth of London and developments in neighbouring counties, potential airport expansion, and national population growth. How communities are planned and developed within Local Plans will be critical for establishing how the local areas will look and the impact this may have as an attraction for why people choose to live in the county. Transport will play an underpinning role through this process by the networks that are required and available to enable people to travel to work, school or college, to see a doctor or visit a hospital, go shopping, or enjoy a walk in the Hertfordshire countryside.

In February 2014, the County Council’s Highways and Waste Management Panel endorsed a series of recommendations to update the Council’s transport planning framework to ensure the transport network is able to support increased growth. One of these recommendations was to develop a new spatial transport vision for Hertfordshire.

This document represents the first stage of the Transport Vision work programme, by presenting a review of the key challenges facing Hertfordshire, and how these wider challenges might impact on the transport network and services in the period to 2050.

This paper also sets out draft proposals for how we might measure the success of transport in the future, particularly in terms of supporting the county’s growth-related priorities.

The publication of this document initiates an extensive engagement and exercise with partners in Hertfordshire, concluding in April 2015.

It should be noted that this early stage of the process is not designed to identify new transport schemes - the document purposely does not discuss solutions. It is to designed to ‘take a step back’ and develop a shared consensus and understanding of the wider growth challenges and pressures facing Hertfordshire, and have a discussion with partners about the potential implications of this on the long-term transport network. Stage 2 of the process, to start later in 2015, will discuss specific packages of long-term transport interventions as part of a Vision. To the same extent this stage will of the process will not be looking at the different ways in which people travel in great detail, with the focus instead being on transport as a means to an end and the role it plays in enabling people to go about their daily lives.
# 2. Background

– a changing Hertfordshire

This section sets out the major changes over the last 65 years that have shaped today’s Hertfordshire, and the recent changes to national and local government policy that now requires us to develop a transport Vision to 2050.

‘Looking back to look forward’ – a review of growth and transport in Hertfordshire over the last 65 years

In order to look forward to 2050, and appreciate the scale of change that could take place, it is helpful to reflect on the significant changes that have taken place to the transport network over the last 65 years that have dramatically altered the transport network and subsequently the lives of residents within Hertfordshire.
The de Havilland DH 106 Comet was developed in Hertfordshire was introduced in 1952 for regular passenger services, a first for jet aeroplanes. It reduced journey times significantly between international locations.

In 1962, several sections of the A1 route were upgraded to the A1(M) standard such as the Stevenage Bypass which was built to ease pressure on the Great North Road.

The East Coast Main Line between London Kings Cross and Royston was electrified between 1976 and 1978, resulting in the acceleration of journeys by at least 15 minutes.

The Transport Act of 1985 introduced the deregulation and privatisation of British bus services. Fare levels, routes, vehicle types and frequencies became determined by commercial operators, introducing competition for local bus services.

A New Deal for Transport: Better for Everyone was produced in 1997. This led to the formation of Local Transport Plans, in the Transport Act 2000.

In 2006, the Baldock Bypass and the Weston Hills Tunnel opened and since reduced town traffic and provided Baldock town centre with a safer pedestrian and cycling environment.

The Hitchin Flyover was constructed in 2013 and has improved travel times.

In 1948, Stevenage became a New Town and saw development throughout the 1950s. It was the first UK town to have a completely pedestrian town centre.

The Beeching Cuts of the 1960s led to the restructuring of British railways nationally and involved the controversial closures of many railways, including Buntingford in Hertfordshire.

In 1986, the M25 opened to traffic to reduce growing traffic congestion on London roads.

Hatfield Tunnel opened to traffic in 1986 with the A1(M) running through it. Its completion led to the development of the Galleria shopping centre above it in 1991.

Dial-up internet was first introduced nationally in 1992, but by 2007 more than half of homes were using faster broadband services which have improved teleworking capacity within Hertfordshire.

Hertfordshire County Council and other partners secured £11 million funding from the Local Sustainable Transport Fund in 2011. This will contribute to transport schemes under ‘BIGHertsBIGIdeas’, such as the St. Albans Quality Network Partnership.
Development to 2050 – driving future changes

This historical rate of development shows no sign of abating. Recent and emerging national and local strategies, in addition to forecast population trends, point to the continuation of this growth in Hertfordshire and neighbouring areas, with ever increasing pressures on our existing transport system if nothing is done. The pressure will come from a variety of sources, and will have a significant impact on the transport system, as set out in chapters three and four. Of particular importance in shaping the future growth in Hertfordshire are the following initiatives arising from Government and other bodies:

- **Local Plans and major development sites:**
  Whilst Local Plans are at varying stages of development, it is estimated that, at a minimum, the county will grow by 169,000 homes and 115,200 jobs between 2011 and 2050. Within this, a number of major development sites are being proposed. The cumulative impact of this growth will result in greater demand for movement in the county, as a growing number of people will need to travel to a growing number of jobs.

- **LEP Strategic Economic Plan:**
  In March 2014, the Hertfordshire Local Enterprise Partnership (LEP) submitted its Strategic Economic Plan (2015/16 to 2020/21) to the Government, setting out a £200m investment package in return for delivery of 17,000 homes and 13,000 jobs. The Government has agreed this Growth Deal, with delivery starting in March 2015.

- **National Aviation policy:**
  The aviation growth agenda is taking off. Although the Davies Commission will not publish its final recommendations on airport growth in the South East until after the General Election, individual airports and developers are continuing to develop their own proposals. For example, the owners of London Stansted Airport are currently consulting on maximum use of its existing runway, while the Mayor of London has set out proposals for a four-runway Estuary Airport. We have also recently seen the approval for expansion of London Luton Airport consisting of modernisation of the terminal building and the provision of up to 45,000 extra flights a year. The surface transport implications for expansion of the airports, even to the maximum use of their existing facilities, will place additional travel demands on the county’s transport network.

- **London Plan:**
  The Examination into the Further Alterations to the London Plan (FALP) took place during September and October 2014. The emerging plan sets out proposals for 42,000 new homes per annum and approximately 900,000 new jobs in the capital, in addition to the requirement for significant infrastructure investment that will impact on travel in Hertfordshire, including Crossrail 2 (in addition to recent Government announcements to extend Crossrail 1 into the County). Major growth taking place in London will directly impact on Hertfordshire.

The County Council’s existing Local Transport Plan, adopted in 2011, was appropriate for the time in which it was developed, but the national growth, economy and funding context has now shifted considerably, and our existing plans do not fully address these emerging growth issues. We need to do something about it.

The context in which the existing Local Transport Plan was established will also see further change following the General Election in 2015. This places greater importance on to the need to reflect any further changes at a national level, for which the timeframe of development for the Vision will take into account.

Why a Hertfordshire Transport Vision matters

There is a real opportunity right now to plan and design our transport projects to 2050 to pro-actively manage the planned growth that will take place over this period.

Hertfordshire did very well through the Growth Deal announced in the summer of 2014, with £170m initially secured for the county’s transport priorities to 2021 to support the economy; however, the county
will face stronger competition in the future from other parts of the UK for limited Government and private investment in transport. Areas such as Cambridgeshire, and in particular Cambridge and the south of the county through the City Deal funding they have received, and Manchester, Leeds and Sheffield through the northern ‘Super City’ concept, are likely to see increasing opportunities for funding through the commitments that have been made to these areas.

We need to develop a strong portfolio of transport investment for the period 2021 to 2050 to proactively support future growth pressures and to be able to respond to funding opportunities as they become available. Setting a Vision that clearly articulates how Hertfordshire will be seen to 2050 will help external organisations and the Government to understand what we are trying to achieve, reassuring them that the funding allocated to the county is being used with a clear purpose and direction.

If we start now, we have time to identify the future long-term challenges and develop an evidenced and robust programme of transport investment that will address these challenges. However, we need to set out what the future transport network will need to look like in 2050 in order to develop the long-term programme of investment. This picture of the future network for travel will be known as the Transport Vision.

The long-term Transport Vision will be vital to shape our ongoing transport plans and strategies, communicate our ambitions with partners, and attract future transport investment funding from Government, the private sector and other sources. And while initial elements that go into supporting the development of the Vision may be likely to change as time progresses, the intention of the document is to be sufficiently flexible to enable amendments to be made but would still fit within the overall context of working to achieve the longer-term Vision. Examples of this may include additional housing or employment in locations that were not anticipated, the development of a technological innovation that was not foreseen, or the availability of funding at a level that was not anticipated.

**Our plans for a Transport Vision**

The new spatial Vision will set out a long-term transport map for Hertfordshire, identifying the key areas and corridors where transport improvements will be required in the period from now to 2050.

The development of the Vision would directly lead to the identification of long-term priority schemes and packages for which business cases can be prepared to ensure the county holds a balanced range of well developed schemes that can be utilised to exploit funding opportunities that arise, often at short notice.
The objectives of our Transport Vision work programme for the next 18 months are:

- To identify the wider challenges (growth-related and other) and resultant transport challenges for Hertfordshire to 2050
- To identify a long-term spatial transport vision for Hertfordshire for the period to 2050
- To establish the next generation of major schemes and transport packages for the County Council and its partners to develop and deliver within the timescale to 2050.
- To generate a consensus amongst key partners in Hertfordshire regarding the future direction of transport planning in the County.
- To develop a strong communications and lobbying strategy to articulate and promote the Vision to Government and funding bodies.

When finalised in late 2015, the final Transport Vision will provide:

- A definitive map and narrative, underpinned by an evidence base, which describes the long-term transport challenges for the county (to 2050), based on the existing evidence base and future predictions;
- A map (or series of more detailed maps outlining corridors and sub-areas) which set outs future transport challenges and packages of strategic level transport measures to address these;

To kick off the development of a Vision, our Transport Planning partners, AECOM and Arup, have produced reports that identify the wider challenges facing Hertfordshire to 2050, particularly those related to growth, and subsequently set out the transport implications of these.

The Arup report (summarised in chapter 3) has identified the known (non-transport) strategies, plans and forecasts from now to 2050, and set out a long-term ‘known Vision’ for Hertfordshire based on these. These plans are from a series of organisations and use the main objectives, goals and ambitions to develop the ‘known’ future for how Hertfordshire would look if these were achieved. The report then identifies a best and worst case outlook, which have been termed as positive and negative deviations within the report. These scenarios are based on the opportunities and challenges that will be faced over the coming years and on the likelihood of additional benefit or risk of elements adding or subtracting from the ‘known’ central vision.

The AECOM report (summarised in chapter 4) has taken the wider challenges and identified the specific transport challenges that a future Vision will need to address.

The challenges in the following chapters are presented over three key timescales:

- Now to 2021 (the short-term)
- 2021 to 2031 (the medium-term)
- 2031 to 2050 (the long-term)
3. Wider Challenges to 2050 (by Arup)

This section sets out a review of the wider challenges facing Hertfordshire to 2050, by setting out a future ‘known Vision’ scenario incorporating known growth ambitions and projected demographic, technological, social, economic and environmental forecasts. This chapter also illustrates the implications of other scenarios.

The ‘known vision’ is established from a literature review and analysis of local and national policies, strategies and guidance, which are then used to develop how Hertfordshire may look in 2050 if the objectives or ambitions were achieved. The divergent scenarios are alternative visions in which elements change either positively to produce a ‘best case’ or negatively to produce a ‘worst case’ vision of 2050. These scenarios are highlighted in the following review.

Introduction

Arup has engaged with a number of key organisations from across the county. We identified and prioritised ‘drivers of change’ that will influence Hertfordshire for the period to 2050 under the domains of Society, Technology, Economy, Environment and Politics. The ‘drivers of change’ identified as priorities were:

- Society: appropriate housing
- Technology: internet of things
- Economy: economic aspiration
- Environment: urban informatics
- Politics: planning policies

The results of the engagement were the starting point to help piece together a ‘Known Vision’, based on the extensive work done already on what Hertfordshire will look like up to 2050. We also looked at local, national and global trend data to help build up a picture of how we expect Hertfordshire to develop over the next 35 years. We then developed a ‘positive vision deviation’ and a ‘negative vision deviation’, based on the opportunities and challenges that may prove critical over the next 35 years.

The list of documents, literature and data review, and results of the stakeholder engagement used to build up this ‘Known Vision’ for Hertfordshire to 2050 can be found in the Full Report. The Full Report also contains the methodology for the positive and negative deviations and a detailed explanation of each of the three scenarios. The following sections provide a summary of the three ‘visions’, the differences between them, and the challenges and opportunities which need to be addressed in order to shape Hertfordshire’s future.
Known Vision

People choose to live in Hertfordshire in 2050 because it is pleasant, welcoming, accessible, and has sufficient social and cultural opportunities. The proportion of the population which is over 60 and over 80 has increased, households are smaller, and there are more single person households. The population is healthier than it was in 2014, due to a focus on active lifestyles and nutrition, and appropriate housing has been built in the period from 2014 to 2050. There has been a continued growth in the use of social media and online communities.

By 2050, Hertfordshire is known for its excellence in science and technology (particularly concentrated around Watford, Harpenden, Stevenage and Hatfield – the opportunity areas identified in 2014), and also attracts emerging sectors. Development has had a positive impact on the environment through sustainable construction methods, and climate modelling is used for planning for the future. Energy efficiency and microgeneration technologies have been adopted, and sustainable food production has increased. 3D printing has decentralised production in some sectors and the ‘Internet of Things’ has improved quality of life and efficiency of service provision.

Hertfordshire is a prosperous and thriving county in 2050, with a strong, sustainable, viable economy and a range of employment opportunities available locally. Local centres are prospering, including areas which have been regenerated, and there has been growth in the medium-sized business economy. To remain competitive at a global level the UK as a whole focused on creating a highly skilled workforce, taking advantage of technological developments, and moving to a low carbon economy. Hertfordshire is well positioned to capitalise on its links to the global economy, being in close proximity to London and its nearby airports: Stansted, Luton and Heathrow.

Several steps have been taken in the years up to 2050 to address climate change, including an increase in the amount of food grown locally, flood risk management (particularly in higher-risk areas such as Hertford, Broxbourne and Rickmansworth), high quality sustainable design of new developments, the development of renewable energy production and a more efficient use of resources; however the frequency and intensity of extreme weather events has increased. The environmental impact of transport has been reduced by an increase in the range of jobs available locally (which has minimised the need to commute), and improved opportunities for travel by public transport, walking and cycling.
THE KNOWN VISION

A desirable place to live

Figure 3.1: Known Vision Infographic
Positive Deviation from the Known Vision

Hertfordshire is the county of choice for many people to live in, work in and visit. It is fair and inclusive, and everybody is given the opportunity to live a healthy, fulfilling, safe life. Adequate appropriate housing has been provided, heritage and character of places has been retained, communities are vibrant and the countryside has been enhanced and protected. The trend towards more single person households, which can put pressure on housing provision, has been reversed as communities have got stronger and incentives for shared housing are put in place.

There has been little resistance to growth because developments are attractive, environmentally sensitive and enhance the quality of the county. Social media is used by local government and other organisations for effective two-way public engagement and buy-in. Transport provision is more inclusive and active travel is encouraged, which has helped to reduce the proportion of obese adults from 25% to 10% and obese children from 14% to 5%. Autonomous vehicles have enabled mobility for those who are unable to drive and technology which enables home working has reduced the need to travel.

Airport expansion at Stansted, Luton and Heathrow has resulted in significant development and regeneration in and around Hertfordshire, with increased tourism and business opportunities. Hertfordshire is known for its excellence in science and technology, and also attracts emerging sectors. Development has had a positive impact on the environment through sustainable construction methods and zero carbon standards, and climate modelling is used for planning for the future.

Energy efficiency and microgeneration technologies have been widely adopted and Hertfordshire creates a surplus of energy which is sold to Greater London to supplement the energy needs of the city. The vast majority of vehicles on Hertfordshire’s roads are efficient autonomous vehicles, which allow travel time to be used more productively or at leisure.

Local farmland is protected, food production has become more efficient, and green infrastructure has provided new areas for small scale urban farming. The Internet of Things has improved quality of life and efficiency of service provision, and 3D printing has decentralised production in some sectors.

Varied and accessible employment opportunities are available locally; residents whose employers are less local take advantage of community or domestic video conferencing facilities and flexible hours. Local town centres are prospering, and the medium-sized business economy is burgeoning. There has been an increase in ‘semi-retirement’ due to better health, and many retired people started new businesses, a trend termed ‘grey entrepreneurship’.
The county has benefited from its position within the ‘golden triangle’ of Oxford, Cambridge and London, with excellent links to all three urban areas and beyond. Its proximity to London means that it can capitalise on the city’s investment in infrastructure and the economic spill-over from the capital’s thriving businesses.

The local environment has improved, through the protection of existing countryside (including the Chiltern Hills and Lea Valley), the planting of new woodlands and extensive development of green infrastructure. Infrastructure is more resilient than in the past and services such as provision of energy, water and public transport are more reliable. Globally, climate change mitigation and adaptation policies since 2014 have limited the impacts of global warming.

The amount of waste produced by the population of Hertfordshire has decreased, and all waste is either recycled or recovered. Hertfordshire now has a dedicated waste power plant which provides a local source of relatively clean energy. The decentralised collection, treatment and distribution of water at a household or community scale has meant that Hertfordshire has increased its water security, and has provided enough capacity for a larger population.

Urban informatics is used to understand and respond to trends and Hertfordshire has become a case study in how to transform a car dependent society where roads created barriers as well as environmental and health concerns, into an integrated, accessible and sustainable county.

Airport expansion at Stansted, Luton and Heathrow has resulted in significant development and regeneration in and around Hertfordshire, but the use of sustainable aviation biofuels has resulted in reduced emissions and quieter engines. Growth in airport capacity has been matched by more efficient surface access transport and better links between towns and cities.

Politics in Hertfordshire in 2050 is highly participatory. Residents make a proactive contribution to their local area and work with elected representatives and community activists to tackle local issues. Effective partnerships and the development of shared ambitions within the county have successfully overcome NIMBY-ism. Sensitive development planning and renewable energy production has been implemented, and county-wide strategic green infrastructure has been put in place.

Hertfordshire engages actively with neighbouring counties to ensure mutual benefits and regional cooperation. Support of local plans and policies by residents and businesses has reduced the threat of political short-termism.
Figure 3.2: Positive Deviation Infographic

A thriving and sustainable county

THE POSITIVE DEVIATION
Negative Deviation from the Known Vision

Hertfordshire’s population expanded rapidly up to 2050 due to its commutable distance to London (which continued to become more economically dominant), immigration and natural population growth. Population growth has not been met by adequate and appropriate housing (including affordable housing). The countryside has been negatively affected by inappropriate new development, intensification of agriculture and small scale wind farms, which have damaged tourism as well as natural habitats.

More adults and children are overweight or obese than in 2014, in part due to inadequate provision for walking and other non-motorised forms of transport such as cycling. Social media has limited real social interaction and engagement, and community areas have suffered, exacerbated by a rise in petty crime and theft.

In 2050, Hertfordshire struggles to retain talented professionals in the bioscience, pharmaceuticals, film, digital animation and creative industries because people cannot afford to live in the county. The potential of the Internet of Things and big data analysis is constrained by a lack of open access and sharing of information. New developments have not been built to the energy saving standards required by the European Union, and energy use has increased due to higher overall demand from Hertfordshire’s growing population.

The majority of travel is also still by private vehicles, which offsets many of the gains from cleaner technologies. As nearby airports have expanded to cope with growing demand for air travel to the UK, congestion on the roads in Hertfordshire and overcrowding on the rail links to London have worsened.

Hertfordshire is reliant on London for jobs and business opportunities in 2050 and is therefore more vulnerable to global economic trends. Town centres are in decline, high street businesses have become less viable, and there is a lack of affordable housing and services. Those working in Hertfordshire often have to travel from outside the county because they cannot afford to live in Hertfordshire. The combination of a declining agricultural economy and inappropriate development has reduced tourism to the county. Hertfordshire is collectively and individually less well off in 2050 than in 2014.

The amount of green space in the county has decreased as economic growth and the movement of people and goods were seen as greater priorities. Extreme weather events occur more frequently and have more severe consequences. The amount of waste produced by Hertfordshire has increased as the population has expanded and there has not been efficient implementation of recycling or a local circular economy. Hertfordshire is increasingly reliant on imported food sources, and thus susceptible to supply chain issues and rising import prices. The county is also dependent on the national government to lead on climate change solutions and interventions.

Social inclusivity and environmental concerns are low on the political agenda, and there is a high degree of political apathy amongst the populace. A two-tiered society has emerged and the needs of an increasingly diverse population – commuters, unskilled seasonal workers, local businesses, and the elderly – are not being adequately addressed. Planning policies in Hertfordshire have been largely ineffective, transport, infrastructure and energy provision has not been able to support the growing population, and there is insufficient cooperation between counties to come up with cross-boundary housing solutions.
NEGATIVE DEVIATION

A congested urban area for London commuters

Figure 1.3: Negative Deviation Infographic
Challenges and Opportunities

A number of opportunities emerge from the positive deviation that should be capitalised upon and a number of challenges emerge from the negative deviation that should be mitigated for Hertfordshire to achieve (and surpass) its vision for 2050. The differences between the three scenarios are highlighted in Figure 4.
Figure 3.4 The differences between the Known Vision and its positive and negative deviations

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<th>KNOWN VISION</th>
<th>NEGATIVE DEVIATION: THE CHALLENGES</th>
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<tbody>
<tr>
<td>SOCIETY</td>
<td>• Hertfordshire is an attractive place to live, work and visit with vibrant and inclusive communities</td>
<td>• Hertfordshire is an attractive place to live</td>
<td>• Rapid population expansion in Hertfordshire due to its commutable distance to jobs in London</td>
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<td>• Quality and affordable housing has been provided</td>
<td>• Sufficient social and cultural opportunities</td>
<td>• Inadequate and inappropriate housing provision</td>
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<td>• Heritage and character of places has been retained</td>
<td>• Increased proportion of population over 60 and over 80</td>
<td>• Negative impact on the countryside with inappropriate new development and intensification of agriculture</td>
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<td>• Countryside has been protected and enhanced</td>
<td>• Smaller household size, more single person households, some pressure on housing provision</td>
<td>• Increase in obesity amongst children and adults due to inadequate active travel provision</td>
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<td></td>
<td>• Trend to single person households has been reversed with incentives for shared housing</td>
<td>• Active lifestyles and healthy population</td>
<td>• Limited real social interaction and community engagement due to social media taking over</td>
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<td>• Active travel has helped reduce obesity amongst adults and children</td>
<td>• Growth in social media and online communities</td>
<td>• Lack of community spirit leading to increase in petty crime</td>
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<td>TECHNOLOGY</td>
<td>• Most vehicles on the roads are autonomous, which are efficient, allowing for productive use of travel time and provide mobility for those unable to drive</td>
<td>• Hertfordshire is known for its excellence in science and technology</td>
<td>• Hertfordshire struggles to retain talented professionals in bioscience, pharmaceuticals, film, digital animation and creative industries because of the lack of affordability of living and housing provision</td>
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<td>• Zero carbon building standards</td>
<td>• Attractive to emerging sectors</td>
<td>• Internet of Things and use of big data constrained by lack of open access</td>
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<td>• Hertfordshire creates a surplus of energy which is sold to supply London’s energy needs</td>
<td>• Sustainable construction methods</td>
<td>• Increased energy use by population</td>
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<tr>
<td></td>
<td>• Sustainable food production</td>
<td>• Climate modelling used for future planning</td>
<td>• New developments not built to EU’s energy saving standards</td>
</tr>
<tr>
<td></td>
<td>• Green infrastructure provided new areas for small scale urban farming</td>
<td>• Use of microgeneration technology</td>
<td>• Minority of travel is by private vehicle, which offsets many of the gains from cleaner technologies</td>
</tr>
<tr>
<td></td>
<td>• Extensive use of 3D printing and the ‘Internet of Things’</td>
<td>• Use of 3D printing in some sectors</td>
<td>• Steps taken nationally to address climate change</td>
</tr>
<tr>
<td></td>
<td>• Range of employment opportunities available locally</td>
<td>• Improved energy efficiency</td>
<td>• Increased amount of food grown locally</td>
</tr>
<tr>
<td></td>
<td>• Prosperous local centres</td>
<td>• ‘Internet of Things’ used to improve service provision efficiency</td>
<td>• Local flood risk management</td>
</tr>
<tr>
<td></td>
<td>• Growth in medium-sized business economy</td>
<td>• Focus on highly skilled workforce to be globally competitive</td>
<td>• Decreased impact of transport on the environment with reduction of commuting journeys</td>
</tr>
<tr>
<td></td>
<td>• Residents with more remote jobs use community or domestic video conferencing and flexible hours</td>
<td>• Low carbon economy</td>
<td>• Improved public transport, walking, and cycling connections</td>
</tr>
<tr>
<td></td>
<td>• Increase in semi-retirement due to better health and many retired people have started new businesses.</td>
<td>• Steps taken nationally to address climate change</td>
<td>• Movement of people and goods prioritised over environmental protection</td>
</tr>
<tr>
<td></td>
<td>• Excellent links to ‘Golden Triangle’ of Oxford, Cambridge and London means Hertfordshire can benefit from these markets and infrastructure.</td>
<td>• Steps taken nationally to address climate change</td>
<td>• Frequent extreme weather events with severe consequences</td>
</tr>
<tr>
<td>ECONOMY</td>
<td>• Airport expansion at Stansted, Luton and Heathrow resulted in increased tourism and business opportunities</td>
<td>• Range of employment opportunities available locally</td>
<td>• Water shortages</td>
</tr>
<tr>
<td></td>
<td>• Growth in airport capacity has been matched by more efficient surface transport and better links between towns and cities</td>
<td>• Prosperous local centres</td>
<td>• Increased waste production and inefficient implementation of recycling or reuse policies</td>
</tr>
<tr>
<td></td>
<td>• Varying and accessible employment opportunities available locally</td>
<td>• Growth in medium-sized business economy</td>
<td>• Local climate change policies have limited the impacts of global warming</td>
</tr>
<tr>
<td></td>
<td>• Residents with more remote jobs use community or domestic video conferencing and flexible hours</td>
<td>• Focus on highly skilled workforce to be globally competitive</td>
<td>• Increased water security through decentralisation of collection, treatment and distribution</td>
</tr>
<tr>
<td></td>
<td>• Minority of travel is by private vehicle, which offsets many of the gains from cleaner technologies</td>
<td>• Low carbon economy</td>
<td>• Two-tiered society with a lack of integration</td>
</tr>
<tr>
<td></td>
<td>• Hertfordshire has a dedicated waste power plant which produces clean energy</td>
<td>• Increased water security through decentralised collection, treatment and distribution</td>
<td>• Needs of diverse population (commuters, unskilled seasonal workers, local businesses, elderly people) not addressed</td>
</tr>
<tr>
<td></td>
<td>• Increased water security through decentralised collection, treatment and distribution</td>
<td>• Improved public transport, walking, and cycling connections</td>
<td>• Transport, infrastructure and energy policies are ineffective in supporting the growing population</td>
</tr>
<tr>
<td></td>
<td>• Steps taken nationally to address climate change</td>
<td>• Increased amount of food grown locally</td>
<td>• Lack of community spirit leading to increase in petty crime</td>
</tr>
<tr>
<td></td>
<td>• Increased water security through decentralised collection, treatment and distribution</td>
<td>• Local flood risk management</td>
<td>• Steps taken nationally to address climate change</td>
</tr>
<tr>
<td></td>
<td>• Local climate change policies have limited the impacts of global warming</td>
<td>• Increased water security through decentralised collection, treatment and distribution</td>
<td>• Movement of people and goods prioritised over environmental protection</td>
</tr>
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<td></td>
<td>• Increased water security through decentralised collection, treatment and distribution</td>
<td>• Increased amount of food grown locally</td>
<td>• Water shortages</td>
</tr>
<tr>
<td></td>
<td>• Local flood risk management</td>
<td>• Frequent extreme weather events with severe consequences</td>
<td>• Increased waste production and inefficient implementation of recycling or reuse policies</td>
</tr>
<tr>
<td></td>
<td>• High quality sustainable design of new developments</td>
<td>• Increased intensity of extreme weather events</td>
<td>• Local climate change policies have limited the impacts of global warming</td>
</tr>
<tr>
<td></td>
<td>• Development of renewable energy production</td>
<td>• Decreased impact of transport on the environment with reduction of commuting journeys</td>
<td>• Increased water security through decentralised collection, treatment and distribution</td>
</tr>
<tr>
<td></td>
<td>• Increased water security through decentralised collection, treatment and distribution</td>
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<td>• Two-tiered society with a lack of integration</td>
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<tr>
<td></td>
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<td>• Local flood risk management</td>
<td>• Transport, infrastructure and energy policies are ineffective in supporting the growing population</td>
</tr>
<tr>
<td></td>
<td>• High quality sustainable design of new developments</td>
<td>• Increased water security through decentralised collection, treatment and distribution</td>
<td>• Lack of cooperation between neighbouring counties to deal with the housing crisis</td>
</tr>
</tbody>
</table>
Drivers of change can be both challenges and opportunities, depending on how they are addressed. For example, population growth may put pressure on services and infrastructure but could also offer opportunities for business development and economic growth. Hertfordshire’s proximity to London could be an opportunity in terms of economic spill-over, but could be a disadvantage in terms of the pressures on housing provision and the countryside.

How these challenges are met will determine their positive or negative impacts on the county. The STEEP wheel in Figure 5 shows some current statistics under each of the five domains which could prove critical to Hertfordshire’s future. The county’s response to these issues will determine whether the positive or negative scenario is realised.
Developing a Transport Vision for Hertfordshire:

A review of the long-term challenges to 2050

Figure 3.5 Hertfordshire’s Challenges and Opportunities
Questions – Wider Challenges:

1. Do you agree with the known vision?

2. Do you agree with the future challenges, threats and opportunities identified in this chapter through the positive and negative scenarios?

3. Are there any other challenges that should be considered?

4. What do you consider are the most important challenges facing Hertfordshire to 2050?
4. Transport Challenges to 2050 (AECOM)

Transport plays a key role in maintaining Hertfordshire as a place where people want to live and work. This report highlights the key challenges that will impact on the future of Hertfordshire and sets out how these challenges relate to the transport network looking forward to 2050.

Introduction

Transport will play a key role in supporting Hertfordshire’s future aspirations and tackling the challenges stemming from them. Whilst transport is an enabler, not an outcome, the transport network will need to change and develop in line with the wider changes that will take place in the future throughout Hertfordshire.

“Transport is an engine for growth and essential for everything we do. When transport slows, everything slows. When it stops, everything stops. High-performing networks are essential for the UK to compete in the global race.”

The transport challenges to 2050 build on existing evidence and the analysis has been undertaken using a multilayered approach:

1. The Hertfordshire countywide level: the challenges for transport will be considered in the context of society, technology, economy, environment and politics in the 2050 scenario, building on the report by Arup that set out the wider challenges and opportunities for Hertfordshire over this timeframe.

2. Key travel corridors: the challenges for transport will then be considered in relation to key travel patterns reflecting the key areas from which people start and end their journeys.

This multi-layered approach provides an understanding of how the challenges identified are manifested in different locations. This chapter is supported by a longer Transport Challenges Report.
The Role of Transport in Hertfordshire Today

Hertfordshire has a unique challenge in that it has strong connectivity to London, but has a clearly defined economic productivity role of its own.

Hertfordshire plays host to a thriving Biotechnology industry and there is a higher than average number of skilled and highly qualified professionals living in the County. Stevenage, Hemel Hempstead and Watford all play important roles for wider employment both within the county and beyond, while residents also travel outside of the county to work in other economic centres, for example, Cambridge, Oxford, Luton and London.

Whilst north-south travel has to be accommodated into London, the network also has to enable east-west movements across the county. In order to support labour markets, the transport network needs to connect people to where they want to travel to, making the journey as easy and reliable as possible whilst minimising impact on congestion and the environment. If more jobs are generated, an increasing number of people will want to travel, with a majority needing to travel into our already congested centres.

Hertfordshire is located between two key airports (London Stansted and London Luton), in addition to being close to London Heathrow. All of these airports have expansion aspirations, making Hertfordshire a growing destination for both long haul and short haul business and leisure trips.

Figure 4.1 shows the transport network in Hertfordshire today.

With this wide role in supporting people moving for all manner of reasons and purposes by a variety of modes, the following section considers the key challenges facing transport through the key ‘drivers of change’.
Developing a Transport Vision for Hertfordshire:

If more jobs are generated, an increasing number of people will want to travel, with a majority needing to travel into our already congested centres. Hertfordshire is located between two key airports (London Stansted and London Luton), in addition to being close to London Heathrow. All of these airports have expansion aspirations, making Hertfordshire a growing destination for both long haul and short haul business and leisure trips.

Figure 4.1 shows the transport network in Hertfordshire today.

With this wide role in supporting people moving for all manner of reasons and purposes by a variety of modes, the following section considers the key challenges facing transport through the key 'drivers of change'.

Society in 2050: the challenges for transport

The demand for transport comes from the people using the network and the purpose for which they are travelling. Unless there is a significant change to mean that fewer people need to travel, or that the highest demand can be spread, then as the population grows the demand is likely to grow as more people need to travel for work, leisure, retail, education and access to services. Table 4.1 shows the anticipated population growth to 2050.
Society in 2050: the challenges for transport

The demand for transport comes from the people using the network and the purpose for which they are travelling. Unless there is a significant change to mean that fewer people need to travel, or that the highest demand can be spread, then as the population grows the demand is likely to grow as more people need to travel for work, leisure, retail, education and access to services. Table 4.1 shows the anticipated population growth to 2050.4

Table 4.1: Population Projections (All Ages)

<table>
<thead>
<tr>
<th>District</th>
<th>2013 (NOMIS)</th>
<th>2031 (NOMIS)</th>
<th>2050 (extrapolation from 2031)</th>
<th>% Change (2013-50)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Broxbourne</td>
<td>95,000</td>
<td>109,100</td>
<td>131,000</td>
<td>38%</td>
</tr>
<tr>
<td>Dacorum</td>
<td>148,200</td>
<td>173,300</td>
<td>209,500</td>
<td>41%</td>
</tr>
<tr>
<td>East Hertfordshire</td>
<td>141,100</td>
<td>166,000</td>
<td>202,700</td>
<td>44%</td>
</tr>
<tr>
<td>Hertsmere</td>
<td>101,300</td>
<td>121,100</td>
<td>149,700</td>
<td>48%</td>
</tr>
<tr>
<td>North Hertfordshire</td>
<td>129,300</td>
<td>153,400</td>
<td>189,100</td>
<td>46%</td>
</tr>
<tr>
<td>St Albans</td>
<td>143,100</td>
<td>168,200</td>
<td>204,700</td>
<td>43%</td>
</tr>
<tr>
<td>Stevenage</td>
<td>85,500</td>
<td>97,900</td>
<td>116,300</td>
<td>36%</td>
</tr>
<tr>
<td>Three Rivers</td>
<td>89,500</td>
<td>107,000</td>
<td>132,000</td>
<td>47%</td>
</tr>
<tr>
<td>Watford</td>
<td>93,700</td>
<td>112,700</td>
<td>140,400</td>
<td>50%</td>
</tr>
<tr>
<td>Welwyn Hatfield</td>
<td>114,100</td>
<td>135,400</td>
<td>167,100</td>
<td>46%</td>
</tr>
<tr>
<td>Total</td>
<td>1,140,800</td>
<td>1,344,100</td>
<td>1,642,500</td>
<td>44%</td>
</tr>
</tbody>
</table>

* rounded to no decimal places

Figure 4.2 shows how this population projection may be reflected spatially in 2050 based on the forecasts in Table 1.

The Arup report suggests that a worst case ‘negative deviation’ of the 2050 scenario would have rapid population growth, greater levels of car based commuting, a focus on travel to London for employment and unsustainable development patterns. This will place greater demands on the existing infrastructure, with access to more urban areas, employment locations, retail and leisure suffering from increased congestion and reduced reliability. This is likely to generate increased emissions from transport resulting in lower air quality and increasing the relative risks associated from having to live or travel through these areas.
Figure 4.2: Population Projection 2050

A review of the long-term challenges to 2050
2050 population projection is based on a yearly population growth from 2013 to 2031, which is based on NOMIS

Technology in 2050: The Challenges for Transport

1. Technological developments in transport require funding to ensure the benefits can be realised
2. Future technological developments in transport will require significant investment in infrastructure to enable wide usage
3. A step change in the accessibility of technological developments are required to ensure transport can apply the benefits
4. Effective harnessing of the data that may become available to support the use of technological innovations
5. Understanding how, why and when people will want to access and use information to support their journey

A review of the long-term challenges to 2050
Economy in 2050: the challenges for transport

Transport is a key driver for the economy, with congestion and overcrowding throughout the East of England transport network projected to cost the UK economy £720 million per year by 2021\(^5\). The 2011 Hertfordshire Business Survey showed that 81% of businesses regarded congestion as a disadvantage to being in Hertfordshire. In 2050, unless there is a significant change in travel patterns, the demand on the transport network will have increased significantly.

It is important that the transport network does not limit economic growth in Hertfordshire. Table 4.2 shows what may be anticipated for employment growth across the County\(^6\).

Table 4.2: Future Employment Growth 2011 to 2050, Hertfordshire (TEMPRO Forecast)

<table>
<thead>
<tr>
<th>District</th>
<th>2011 to 2021 Scenario</th>
<th>2021 to 2031 Scenario</th>
<th>2031 to 2050 Scenario</th>
<th>2011 to 2050 Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Growth</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scenario</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hertfordshire Total</td>
<td>45,300</td>
<td>13,800</td>
<td>56,100</td>
<td>115,200</td>
</tr>
<tr>
<td>High Growth</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scenario</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hertfordshire Total</td>
<td>53,300</td>
<td>21,800</td>
<td>71,300</td>
<td>146,400</td>
</tr>
</tbody>
</table>

NB: The 2031 to 2050 low growth scenario is based on an extrapolation of the 2021 to 2031 scenario.
NB: Projections are rounded to nearest 100
NB: The high growth scenario is based on the Hertfordshire SEP proposing additional 38,600 jobs

It is likely that wider economic growth will expand the number of opportunities in London, increasing the number of people who are likely to commute on the north-south transport links through Hertfordshire. This expanding demand will increase pressure on the transport network causing congestion and overcrowding on roads and rail, increasing the cost to the economy through, for example, wasted or lost productivity and increased fuel costs.

Within Hertfordshire, there could be an increasing need for access to the town, city and other key service centres, escalating the pressure on the local road network. This is likely to impact on the viability of the bus network and possibly reducing the coverage of service provision by reducing viability of routes.

Hertfordshire is located within close proximity to two airports, both of which have significant plans for expansion. To ensure this continues to provide a competitive advantage to the County then good accessibility to the airports needs to remain a key consideration, alongside building on links to wider sub-regional airports serving the international market.

\(^5\) EEDA (2008), East of England Transport Economic Evidence Study
\(^6\) The development growth is based on TEMPRO (see the Transport Challenges Report for details on TEMPRO) to 2031 then an extrapolation on the same trajectory to 2050
Economy in 2050: The Challenges for Transport

1. Increased commuting to London increases congestion and overcrowding on the north-south routes through Hertfordshire
2. Congestion on the highway and rail network reduces accessibility to the town and city centres of Hertfordshire
3. Poor connectivity between the east and west of the County, resulting in reinforcement of labour markets aligned to congested north-south routes
4. Reduced connectivity to airports limiting business connectivity to international markets and inward investment
5. Economic growth increasing travel demand for personalised travel
6. The real or perceived reaction to congestion and overcrowding reduces the desire or ability of people to contribute to the economy

Environment in 2050: The Challenges for Transport

Data for the East of England shows that road transport contributes 32.7% of local CO2 emissions. Unless alternative measures are put in place this is set to increase by a further 3% by 2031⁷. Air quality challenges will continue to become more prominent beyond 2031 without any form of mitigation taking place.

The increasing demand for transport and the pressure this can place on the existing transport network increases demand for the construction of transport schemes. This can reduce the accessible green space that we have available and result in damage to biodiversity as well as the built and natural environment.

Environment in 2050: The Challenges for Transport

1. Increased emissions and noise from transport
2. Number of flights to London Stansted and Luton Airports will increase air and noise pollution related to air travel
3. Large scale transport infrastructure damaging the natural and built environment and localised habitats and biodiversity
4. Unsustainable land use planning increasing the need to travel with increased reliance on the car for journeys, increasing roadside emissions
Politics in 2050: the challenges for Transport

The negative deviation of the 2050 scenario suggests that transport may not be a political priority. To ensure future funding for transport infrastructure to be able to create a step change in the transport network and encourage innovation, transport has to be a political priority. Equally, supporting this investment through sustainable development policies allow for integrated transport and land use planning to reduce elements such as the average length of trip, enabling wider travel choices to be made.

Politics in 2050: The Challenges for Transport

1. Maintaining Transport as a high political priority at a local and national level
2. Ensuring transport works within and alongside wider policy areas to enable planning for the mitigation of future growth, development and changes in land use and patterns.
3. Delivering infrastructure to support political priority
4. Accounting for the wider environmental

How will these transport challenges impact on Hertfordshire?

The Transport Network to 2050

Figure 4.3, Figure 4.4 and Figure 4.5 shows the increasing demand challenges for transport in 2050 for Hertfordshire.
Developing a Transport Vision for Hertfordshire:

A review of the long-term challenges to 2050

Figure 4.3: Transport Demand in 2021 (includes development of some projects, e.g. three lane running on the A1(M) J6-8 and A120 Little Hadham bypass)

Figure 4.5: Transport Demand in 2021 (includes development of some projects, e.g. three lane running on the A1(M) J6-8 and A120 Little Hadham bypass)
Developing a Transport Vision for Hertfordshire:

A review of the long-term challenges to 2050

Figure 4.5: Transport Demand in 2021 (includes development of some projects, e.g. three lane running on the A1(M) J6-8 and A120 Little Hadham bypass)

Figure 4.6: Transport Demand in 2031 (includes development of some projects, e.g. three lane running on the A1(M) J6-8 and A120 Little Hadham bypass)
This shows the change in demand for transport on the key road and rail routes from 2011 to 2050. This reflects increasing demand for transport from within as well as connecting to locations outside of Hertfordshire. The role of growth within neighbouring authorities, such as through the London Infrastructure Plan or Greater Cambridge City Deal, will place greater demand on to the network and it will be essential that we plan and work alongside our neighbours to mitigate and accommodate the wider growth.

Moving from this Hertfordshire wide challenge for transport, this report will now present the challenges to 2050 by travel corridor. The corridors used to identify the challenges were developed based upon journey to work movements and key road and rail corridors. It should be noted that the challenges identified are exclusive to the corridors; these are to demonstrate their impact at the local level using the dominant 2011 Census Journey to Work movements. Figure 4.6 below shows the corridors.
This shows the change in demand for transport on the key road and rail routes from 2011 to 2050. This reflects increasing demand for transport from within as well as connecting to locations outside of Hertfordshire. The role of growth within neighbouring authorities, such as through the London Infrastructure Plan or Greater Cambridge City Deal, will place greater demand on the network and it will be essential that we plan and work alongside our neighbours to mitigate and accommodate the wider growth.

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Figure 4.6 below shows the corridors.
A review of the long-term challenges to 2050

Figure 4.6: Key Travel Corridors

The remainder of this chapter will summarise the challenges for transport in Hertfordshire by Travel Corridors.
The remainder of this chapter will summarise the challenges for transport in Hertfordshire by Travel Corridors.

**Corridor 1: London to Aylesbury (A41)**

Corridor 1 focuses on the A41 between London and Aylesbury via Tring. The A41 carries long distance trips through Corridor 1 into London and also provides a good inter-urban route between a number of local settlements. The route bypasses Tring, Berkhamsted, Hemel Hempstead and Watford and then runs broadly parallel to the M1 to north London. Corridor 1 also includes the West Coast Main Line and London Overground rail services into Euston.

By 2050, if the attractiveness of London increases then commuting on the A41 and the West Coast Mainline will also increase. This is likely to increase congestion and overcrowding on these routes. However, opportunities do exist through additional rail links that are provided by London Overground services and the planned extension of the London Underground Metropolitan line to Watford Junction, as well as the proposal for extending Crossrail 1 services through the corridor to possibly serve Watford Junction, Hemel Hempstead, and Tring with links to Harrow. These additional services will provide more choices and quicker links towards London, as well as removing the need to change in the centre for access to other destinations such as London Heathrow.

Also, as demand increases, accessibility to Hemel Hempstead and Watford Town Centre could be compromised. It is anticipated that stress on the highway network in these locations is likely to be over 100% in 2050.

Figure 4.7 shows the transport challenges identified in Corridor 1.
Corridor 1: London to Aylesbury (A41)

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Also, as demand increases, accessibility to Hemel Hempstead and Watford Town Centre could be compromised. It is anticipated that stress on the highway network in these locations is likely to be over 100% in 2050.

Figure 4.7 shows the transport challenges identified in Corridor 1. 

Figure 4.7: The Transport Challenges in Corridor 1
Corridor 2: London to St Albans to Luton (M1)

Corridor 2 focuses on the M1 and the A405 between Watford and St Albans, and the A1081 from St Albans to Luton. The M1 carries long distance traffic linking key cities in the north, including Leeds, Sheffield and Nottingham with London, whilst the A405 and the A1081 carry a mix of long distance and local traffic between Luton, St Albans and Watford. The A1081 runs broadly parallel to the M1 and has historically taken some overspill traffic when the M1 becomes heavily congested\(^8\). The A1081 runs through St Albans. Corridor 2 includes the Midland Main Line to London St Pancras with London being the main focus for commuting trips.

By 2050 the M1 and the Midland Main Line will continue to be congested and overcrowded, as the attractiveness of commuting to London increased. Increasing congestion is also likely to reduce the resilience of the network, as there are more likely to be accidents and the local road network is less likely to be able to cope with the level of traffic flow.

Equally, if an unsustainable development pattern is followed, then there will be increased demand for local centres, such as St Albans. By 2050 the congestion on the local highway network will make accessibility to St Albans increasingly difficult.
Figure 4.8: The Transport Challenges in Corridor 2

Corridor 2: London - St. Albans - Luton (M1)

- Location of London Luton airport is likely to increase demand on the highway network.
- Increased demand for access to town and city centres.
- Increased demand for access to and from Luton airport.
- Increased demand for travel on the north-south routes due to increased commuting to London.
- Increased air and noise pollution from increased congestion and increased air traffic.
- By 2050 the M1 and the Midland Main Line will continue to be congested and overcrowded, as the attractiveness of commuting to London increased.
- Increasing congestion is also likely to reduce the resilience of the network, as there are more likely to be accidents and the local road network is less likely to be able to cope with the level of traffic flow.

Equally, if an unsustainable development pattern is followed, then there will be increased demand for local centres, such as St Albans. By 2050 the congestion on the local highway network will make accessibility to St Albans increasingly difficult.
Corridor 3: London to Potters Bar to Letchworth (A1(M))

Corridor 3 is dominated by the A1(M) linking London with The Midlands and towards the north of England. The A1(M) also carries a mix of local traffic between Letchworth Garden City, Baldock, Stevenage, Welwyn Garden City and Hatfield. Between Welwyn Garden City and north London the A1000 runs parallel and provides more localised connectivity. Corridor 3 also includes the East Coast Main Line which provides rail services to London Kings Cross and Peterborough and connections from Stevenage to Cambridge.

The A1(M) has been identified as a growth corridor by the Local Enterprise Partnership. This is due to the significant private sector businesses located along it and because it is the geographical centre of the UKs pharmaceutical and Bioscience sector. A key section of the A1(M) that is currently at capacity and constraining growth is the two-lane section between junctions six to eight passing Stevenage. The corridor also plays an important link for east-west traffic along the A414, linking the route between junctions three and four through the Hatfield tunnel.

By 2050 the demand for transport will increase, amplifying the congestion and overcrowding on the transport network. The increasing demand for access to town centres and employment sites, such as the Bioscience Catalyst, will exacerbate the congestion in the corridor. This increasing congestion will reduce accessibility for users to the town centres.

Although the A1(M) corridor has been identified as a priority for growth, the transport network could deter business from locating in this corridor. In 2011 the Hertfordshire Business Survey showed that 81% of businesses regarded congestion as a disadvantage to being in Hertfordshire.
Corridor 3: London to Potters Bar to Letchworth (A1(M))

Corridor 3 is dominated by the A1(M) linking London with The Midlands and towards the north of England. The A1(M) also carries a mix of local traffic between Letchworth Garden City, Baldock, Stevenage, Welwyn Garden City and Hatfield. Between Welwyn Garden City and north London the A1000 runs parallel and provides more localised connectivity. Corridor 3 also includes the East Coast Main Line which provides rail services to London Kings Cross and Peterborough and connections from Stevenage to Cambridge.

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Corridor 4: London to Waltham Cross to Cambridge (A10)

Corridor 4 is focused on the A10, which links Cambridge with London via Royston, Ware, Hoddesdon, Broxbourne, Cheshunt and Waltham Cross. The route is dominated by longer distance journeys from Cambridge through to London. This is compounded by local traffic between settlements on the route. The corridor also includes rail services to London Liverpool Street on the West Anglia Main Line, which is a popular commuting route.

The corridor has seen significant development in the Broxbourne district, the northern section of the corridor is rural.

There is no parallel rail route or bus service to the A10 that covers the whole of the corridor, making the car the dominant mode of transport. Although much of the corridor runs through rural locations this limited mode choice is likely to create some isolation for the population living in the area.

By 2050, the car-based commute will increase congestion on the highway network in the corridor, which could in turn reduce accessibility to Hertford and Cheshunt Town Centres. Congestion is currently experienced towards the southern end of the corridor where the A10 meets with at-grade junctions with other roads, limiting the number of vehicles able to pass through of the junctions.

\[^9\] ARUP (2011) Interurban Route Strategy
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Figure 4.10: The Key Transport Challenges on Corridor 4
Corridor 5: Hemel Hempstead to Harlow (M25/A414)

Corridor 5 focuses on the east-west corridor of the M25 and the A414, linking Hemel Hempstead towards Harlow. The A414 additionally provides an alternative diversionary route to the M25 during periods of severe congestion, such as following incidents. The M25 is used for both orbital trips around London and short distance commuting, making this route susceptible to long delays. Future growth in this corridor is likely to impact on the key junctions of the M25 where they intersect with the north-south routes into London, making these locations critical to the growth of Hertfordshire in the long term.

The corridor has a number of key commuting destinations located on it, such as Maylands Business Park at Hemel Hempstead, however, there are no parallel rail routes and limited bus provision that provides a realistic solution to travel along the entire corridor by bus. Where buses do provide an alternative, they suffer from the same congestion on the highway network.

As well as providing east-west connectivity, the proximity of the transport network in this corridor to London means that this flow, in both ways, is a dominant movement. If the attractiveness of employment opportunities in London increase and the population of London rises to the estimate of 11.3 million, then the demand for transport in this corridor will escalate. By 2050, the levels of congestion and overcrowding on the transport on the transport network will be exceedingly high. This will also impact upon the localised congestion that is seen, such as on the A414 in Hertford.
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Figure 4.11: The Key Transport Challenges on Corridor 5.
Corridor 6: Luton to Stevenage to Cambridge (A505)

Corridor 6 focuses on the A505 from Luton through to Cambridge. This route carries both local traffic and long distance traffic moving between the A1(M) and the A10. The route suffers from congestion on the approaches and through the urban areas of Hitchin and Letchworth Garden City. There is no parallel east-west rail connection for the whole route, but the corridor is served by buses into the urban areas. Luton Airport is located in this corridor.

This corridor provides an important link to Cambridge and for travel within the Golden Triangle of Oxford, Cambridge and London, making the area attractive for both businesses and highly qualified professionals. The Golden Triangle accounts for over 50% of the UK’s GDP. It is important that the county benefits from this advantageous location by developing effective training provision and a supporting transport infrastructure.

By 2050 congestion on the A505 will exceed 100% volume to capacity ratio between Luton, Hitchin and Letchworth Garden City. High congestion levels on the highway network are likely to negatively impact on the bus network, as there will be increased journey times and reduced journey time reliability. This reduced journey time reliability will impact on the high levels of commuting between Hitchin, Baldock, Letchworth Garden City and on to Stevenage.

If London Luton Airport continues to expand then the demand for surface access transport will increase. Increasing demand for transport will increase congestion and overcrowding if no new infrastructure is provided. Increased air travel will also increase air and noise pollution in this corridor.
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Corridor 7: Stevenage to Stansted Airport

Corridor 7 focuses on the routes to London Stansted Airport and around Bishop’s Stortford, particularly the A120, as it is the most direct link to London Stansted Airport from Hertfordshire by road for a large area of the county. The corridor suffers from congestion in and around Bishop’s Stortford. London Stansted Airport is served by a direct rail link from London, but there is no east-west rail route to either Stansted Airport or Bishop’s Stortford.

Congestion is experienced on the A120 through Little Hadham; however, this will be resolved on completion of the bypass. The junction with the A120 plays an important role linking the A10 through towards Bishop’s Stortford and on towards Essex. Continuing a journey towards Stevenage from the A120/A10 is an issue, with routes limited to the A602 that is operating close to capacity.

By 2050 the demand for transport and demand for access to urban centres will increase, amplifying the congestion and overcrowding on the transport network through the corridor but also on the links into Bishop’s Stortford. This increasing congestion will reduce accessibility by both car and bus to the town centres.

The limited connectivity on this corridor will lead to overcrowding on other routes.

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Figure 4.13: The Key Transport Challenges on Corridor 7.
Questions

General Transport Challenges:

5. Do you agree with the future transport challenges identified in this chapter?

6. Are there any other transport challenges that should be considered?

7. What do you consider are the most important transport challenges facing Hertfordshire to 2050?

Corridor Specific Challenges:

8. With regard to the specific corridors identified:
   (a) Do you agree with the challenges to 2050?
   (b) Are there any other challenges?
   (c) What are the most important challenges?
5. What does this mean for a future transport Vision?

A Transport Vision - the opportunities and threats

Following on from the work underpinning the previous sections and through preliminary workshops with key stakeholder groups in the summer of 2014, a number of opportunities and threats have been identified with regards to a 2050 Transport Vision for Hertfordshire. These are identified in Tables 5.1 and 5.2 below.

Table 5.1: The opportunities for transport in addressing issues from now to 2050 (preliminary workshop findings)

<table>
<thead>
<tr>
<th>Theme</th>
<th>Issue</th>
<th>Role of transport</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social</td>
<td>Accessibility to services</td>
<td>Transport in the future will play a significant, if not key, role in assisting the increasing elderly population to access services, including employment as people work longer. It will be important for transport, in whatever form, to be simple and safe to use and enable ‘door to door’ travel.</td>
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<tr>
<td></td>
<td></td>
<td>Alongside the elderly as a distinct group, the importance of access to education and training will be important to ensure Hertfordshire residents are suitably skilled to adapt to any changing economic conditions and meet the labour-supply demands of businesses.</td>
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<tr>
<td></td>
<td></td>
<td>The provision of high quality transport infrastructure will additionally enable greater levels of accessibility for people with restricted mobility. This not only includes those with disabilities and carers, but also those with young children and transport goods and/or luggage.</td>
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<td></td>
<td></td>
<td>The provision of information to all users will be key in ensuring that people will be able to travel in an informed manner.</td>
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<tr>
<td></td>
<td>Supporting healthy living as part of everyday lives</td>
<td>Enabling people to be able to travel actively as part of their everyday lives will help to reduce obesity. Enabling people to walk and cycle in safe and high quality environments will additionally provide access to green space and leisure facilities.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Transport additionally has an impact on elements such as air quality and the connection with poor health, as well as contributing to wellbeing through enabling elements such as meeting friends and family, acting as a physical barrier to locations, and the impact of noise as examples. Addressing these issues will support a wider health agenda alongside supporting a greater levels of activity as part of everyday lifestyles.</td>
</tr>
<tr>
<td>Technology</td>
<td>Management of transport network</td>
<td>Improved ITS, connectivity, use of data and access to greater levels of real time information will enable transport networks to be managed in a more efficient and safe manner.</td>
</tr>
<tr>
<td></td>
<td>Development of cleaner/more efficient technology</td>
<td>The development of cleaner technology will provide part of a solution to reducing issues such as poor air quality, while also enabling vehicles to become more efficient in their movement.</td>
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<tr>
<td></td>
<td>Provision of travel information</td>
<td>Provision of high quality, reliable and trusted travel information at varying stages of users making their initial journey choice, and further choices along their route, will assist with providing more reliable travel times by enabling travellers, for example, to avoid incidents on the network or, potentially, not to travel and make alternative arrangements such as teleconferencing.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The provision of information in key locations, be this in the home, office or mode of transport, will enable users to decide what the best option for them would be. Alongside teleconferencing or home working, users may be able to benefit from using business hub locations that enable remote working.</td>
</tr>
<tr>
<td></td>
<td>Development of new/adapted forms of transportation</td>
<td>Although subject to potential legislative issues, the development of new or adapted forms of transportation will provide opportunities for people to travel in safer and more efficient forms of transport. This would potentially offer greater levels of accessibility or wider travel options to a larger number of people.</td>
</tr>
</tbody>
</table>
### Developing a Transport Vision for Hertfordshire:

<table>
<thead>
<tr>
<th>Theme</th>
<th>Issue</th>
<th>Role of transport</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Economy</strong></td>
<td>Wider access to employment markets</td>
<td>The provision of transport to wider locations, in particular building on the counties position within the ‘Golden Triangle’, will enable Hertfordshire residents and businesses to be able to access employment, labour supply and national, European and worldwide markets. Providing travel options in a variety of forms will enable all residents and businesses to be able to benefit from the connections, enabling the county to build on broadening the existing opportunities that exist through its location to London while limiting the risks of being reliant on specific areas.</td>
</tr>
<tr>
<td></td>
<td>Easy access to local centres</td>
<td>Enabling ease of access to key local centres will ensure that local businesses are able to benefit from improved transportation links, maintaining local economic vitality.</td>
</tr>
<tr>
<td></td>
<td>Efficient movement of goods and people</td>
<td>Reducing delays and unreliability across on transport networks will enable businesses to reduce their costs and plan with a greater degree of accuracy the distribution of their goods and services.</td>
</tr>
<tr>
<td></td>
<td>New ways of working</td>
<td>The increasing uptake of alternative ways of working, such as home, flexi and part-time working provide a chance to both minimise problems at peak times on the transport network and to significantly alter the way in which and times at which business services are provided within Hertfordshire.</td>
</tr>
<tr>
<td><strong>Environment</strong></td>
<td>Maintaining green space in Hertfordshire</td>
<td>Long-term planning to provide for the future transport needs of the county will enable any infrastructure delivery to be designed and delivered to reduce any impact on green space within Hertfordshire.</td>
</tr>
<tr>
<td></td>
<td>Resilience to extreme weather events</td>
<td>The ability of the transport network to continue operating fully in the event of an extreme weather event, for example when at risk of flooding, will be important in maintaining reliability on a consistent basis. Adaption and building in mitigation of the network will enable users to be able to continue to travel in a safe environment, and may provide additional mitigation as part of a defence mechanism to protect others areas.</td>
</tr>
<tr>
<td></td>
<td>Protection of built environment</td>
<td>As with maintaining green space, long-term planning for the future of transport needs within the county will enable any infrastructure to be designed with the protection of the built environment in mind. Where solutions to issues are proposed this would take account of the role of the built environment and how any designs may be able to be more sympathetic.</td>
</tr>
<tr>
<td></td>
<td>Reduced emissions</td>
<td>Greater use of alternatives to single occupancy car use fuelled with fossil fuels will enable a reduction in emissions to be achieved.</td>
</tr>
<tr>
<td><strong>Political</strong></td>
<td>Cross-border working</td>
<td>Transport can act as a catalyst to bring parties with differing visions together under one banner. This can also include people from outside the traditional democratic process, such as pressure groups, NGOs or businesses. County-wide transport issues could be the focus for a wider development of cross-party and cross-authority working, leading to a better democratic process. There is additionally a greater opportunity for cross-departmental working within organisations to achieve cross-cutting objectives.</td>
</tr>
<tr>
<td></td>
<td>Devolution of power</td>
<td>The continuing decentralisation of powers, particularly on transport issues presents an opportunity to focus policies and interventions around things which have immediate, direct impacts on the everyday lives of local citizens.</td>
</tr>
<tr>
<td></td>
<td>Involvement of Businesses</td>
<td>The greater involvement of businesses within local policies provides an opportunity for evidence-based decision making. This would be an opportunity for interventions that make an immediate difference in the lives of local people. A stronger evidence base would simplify choice-making and provide greater information and clarity around available options.</td>
</tr>
</tbody>
</table>
### Table 5.2: The threats for transport in addressing issues from now to 2050 (preliminary workshop findings)

<table>
<thead>
<tr>
<th>Theme</th>
<th>Issue</th>
<th>Role of transport</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Social</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Access to Schools</td>
<td>As there is an increase in school choice and diversity of school types, the trip to school grows longer. This places pressures on local transport systems at peak times. Lack of sustainable accessibility to schools would contribute to problems with childhood obesity.</td>
<td></td>
</tr>
<tr>
<td>Unsustainable Development</td>
<td>If new developments are not built with sustainability and sustainable transport in mind then attendant pressures on local areas would emerge. Particularly, this would involve failing to influence modal shift soon after the movement to a development and ingraining unsustainable habits on the parts of residents.</td>
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<tr>
<td>Household size reduction</td>
<td>If households continue to fragment, the ensuing trips would place pressure on the transport network at peak times (e.g: Rather than two people travelling to work together from one household, they may travel separately when part of two households). The complexity of trip chains would increase as single person households navigate daily necessities, rather than just home to work trips.</td>
<td></td>
</tr>
<tr>
<td>Aging Population</td>
<td>As the population ages, there will be a challenge of providing existing subsidised transport or deriving new modes of provision. Existing assumptions about the older population switching to alternative modes of transport may not hold up in the face of a lack of provision. If this is the case then pressures on the transport network would continue to grow.</td>
<td></td>
</tr>
<tr>
<td><strong>Technology</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personalised Travel</td>
<td>With the advent of driverless and personalised travel, this creates new problems around the modelling and management of this demand as they do not fit current understandings of the drivers of demand and capacity.</td>
<td></td>
</tr>
<tr>
<td>Batteries</td>
<td>The widespread adoption of hydrogen fuel cell or electric vehicles will create attendant issues relating to the production, disposal and processing of the batteries they use. Placing further strains on rare earth metals mining and waste processing plants.</td>
<td></td>
</tr>
<tr>
<td>Adoption of Technologies</td>
<td>If the adoption of new transport technologies is not uniform (e.g: If there is a long tail-lag of late adopters) then the benefits would not be distributed evenly across society. The existence of both new transport technologies and older, ‘legacy’ technology would complicate planning and service provision, particularly for local and national government.</td>
<td></td>
</tr>
<tr>
<td><strong>Economy</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employer/ee Skills</td>
<td>The proximity and accessibility of Hertfordshire to London may skew the skills mix of workers available in Hertfordshire. If transport connections are focused on a North-South axis, then there would be a paucity of workers available for local jobs.</td>
<td></td>
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<tr>
<td>Local Centres</td>
<td>Improved accessibility to out of town sites reduces the focus on local centres as economic drivers, potentially leading to the degradation of these areas economically. This would have consequent impacts for local people and the economically disadvantaged.</td>
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</tr>
<tr>
<td>Pressures of Prosperity</td>
<td>If previous associations continue, greater levels of prosperity within Hertfordshire would lead to an increased demand for parking around retail and business sites. This would then lead to commensurate demands for short term-fixes around individual sites rather than a wider holistic plan.</td>
<td></td>
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<tr>
<td>Theme</td>
<td>Issue</td>
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</tr>
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</tr>
<tr>
<td>Environment</td>
<td>Impact of Developments</td>
<td>New developments and their associated transport access schemes will require more active management, particularly in areas such as flooding. Where significant transport infrastructure is created, this would potentially have significant impacts on local flooding and biodiversity issues.</td>
</tr>
<tr>
<td></td>
<td>Access to managed natural sites</td>
<td>As natural sites become more popular, their access becomes an issue. Transport access to sites may lead to further environmental degradation and degradation of the site itself.</td>
</tr>
<tr>
<td></td>
<td>Air Quality</td>
<td>If Transport remains focused on single-occupancy car use then there will be attendant issues with air quality, even with a shift toward Low Emission Vehicles, transferring the problem to the point of (power) production rather than emissions.</td>
</tr>
<tr>
<td>Political</td>
<td>Overcoming the do-minimum scenario</td>
<td>Obtaining overall political buy-in for strong interventions will be increasingly challenging in the future, particularly in the context of narrowed funding streams. In this scenario, the allure of doing as little as possible will be increasingly tempting for policymakers. As transport interventions have long lead-in and planning times, overcoming this mindset will represent an increasing threat to the planning and resilience of future transport systems.</td>
</tr>
<tr>
<td></td>
<td>Decline of political engagement and enthusiasm</td>
<td>An overall decline in enthusiasm for the political process in the future represents an opportunity for vested and minority interests to overly influence decision-making. This is a particular challenge for transport, where schemes are often hotly opposed before construction, followed by a gradual mellowing of opinion.</td>
</tr>
<tr>
<td></td>
<td>Challenges of long term planning</td>
<td>With the greater involvement of outside actors within the democratic process, the issues around long term strategic thinking and planning become deeper. Avoiding solely interventions which fix acute rather than chronic problems will represent a threat to strategic decision-making.</td>
</tr>
<tr>
<td></td>
<td>Central Government Policy</td>
<td>Central government policies around permitted developments have consequent transport impacts, with transfer of office stock to housing this impacts accessibility to employment, healthcare and education sites for residents of these areas and presents wider challenges for service provision in non-traditionally residential areas.</td>
</tr>
</tbody>
</table>
6. Hertfordshire’s strategic goals for the transport vision

Overview

Having reviewed the analysis and reports from Arup and AECOM and feedback from preliminary workshops, this section presents five draft strategic goals that the county council suggests will need to be addressed by transport up to 2050. These goals have been developed through consideration of the key themes that have emerged from the reports and feedback, and from which it was found a number of key themes are prominent.

While these five strategic goals for the transport vision are aspirational, they have been developed based on the wide range of challenges that have been identified. To this extent, each of the strategic goals is targeted towards addressing these challenges the transport specific challenges. Within the core of these goals is the Vision, which will be based on what transport should be working to achieve in Hertfordshire to 2050. Outside of the strategic goals are the transport specific challenges, which themselves were developed through consideration of the wider challenges that may impact on Hertfordshire (see the ‘wheel diagram’). These wider challenges are susceptible to changes at a social, technological, economic, environmental, and political (which is inclusive of legal and legislative issues) level, and so will need review as to how any changes filter through the identified challenges and goals. A chart on the following page highlights how the Vision will be generated through the process.

While this process is looking at these goals in a specific transport context, the ability to achieve them will require working with a wide range of partners. This includes the private, third and public sectors, and includes nationally based agencies and departments alongside local and neighbouring authorities.

While this process takes a longer-term view than our previous transport planning process, we hope that the research and analysis that underpins this work will enable a discussion on the strategic goals for transport and their implication for the county over the coming years and decades. The following pages highlight the strategic goals and how they fit within the ‘wheel diagram’.

Strategic Goals

i) Accessibility for residents and businesses to goods and services within their local communities and across Hertfordshire by all forms of transport

To maximise the opportunities that are available for Hertfordshire residents to take part, prosper and thrive by ensuring they are able to access the goods and services that they need.
As well as accessing goods and services by travelling to them, this would also include potential changes to the way in which they are accessed, such as increasing levels of home delivery and the manner in which it arrives alongside accessing services remotely, such as through online provision. The development of housing, be this existing or new, within local communities will influence the extent to which people will need to travel to access, for example, services or retail, where the relationships between provision of smaller-scale services and those available in larger centres will be important, as will the relationship for how people travel between the two.

The ability to participate may also be influenced in similar ways dependent on what the activity is; however, the role for being able to physically participate through being at a designated location is likely to continue to some extent and so will need to take into account the different ways in which people may more generally move around. This could examine the role for elements such as autonomous vehicles and the difference in service level they provide to car ownership and use, or use of bus, rail or taxi.

ii) Connectivity by a range of transport types and networks that enables residents and businesses to travel throughout their local communities across the county, be this north, south, east or west and internationally.

To encourage business growth, international trade and inward investment in the County by ensuring Hertfordshire businesses are able to easily and quickly access their markets, suppliers and labour force along north-south and east-west routes.

The current primary network within the county is mostly focussed on the movement of goods and people on a north-south axis, radiating from London through or bordering the county towards the Midlands. While this presents an advantage for both the road and rail network in the access they facilitate, they are also prone to congestion at certain points on the network. In contrast to the availability of north-south route options, travelling east-west across the county is limited to the availability of fewer practical route choices, which are also susceptible to incidents on other roads. This in particular includes where traffic is diverting due to incidents, for example, on the M25, which can place significant additional demand onto, for example, the A414, the surrounding local road network and other primary routes. The lack of resilience in the network in the event of these incidents, and the lack of an alternative transportation option, such as rail, results in people having no choice and instead having to use routes which may be appropriate for east-west travel across the county. Other forms of transport that provide a realistic alternative for east-west travel may also relieve some of the north-south trips being made, for instance by removing the need for people to use London as an interchange hub at the same time as people travelling to the City for work.

Improved connectivity throughout the county will enable greater benefit to be sought through the county’s geographic location within the ‘Golden Triangle’ of London, Cambridge and Oxford. The Strategic Economic Plan places a strong emphasis on life sciences, and business within and supporting this sector within the county may benefit from improved links to trade, supply and labour markets. To the same extent, improved business connectivity will improve links for other sectors and businesses more broadly with the potential for improved business links to the rest of the country, and in particular ports and airports for wider international links.

iii) Environment playing a key role in how transport is developed, be this the built environment through the physical composition of local communities or the natural environment and the impact of infrastructure.

To improve upon the outstanding natural and built environment of Hertfordshire and its city, towns and communities by minimising the negative impacts of travel, and ensuring transport infrastructure maintains or improves the built environment in these locations.

The amenity of Hertfordshire, represented through the environments of the city, towns, villages and rural areas that make it up, make it a place in which people want to live and work. Ensuring this appeal is maintained will be a crucial element in the development of any potential future transport related
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investment. As communities are developed or see change, be this through existing or new housing, the environment that makes them-up, both built and natural, will heavily influence the relationship between how people choose to travel. These choices could be linked to issues such as, for example, the perception of safety, the ease of using one form of transport over another, or simply the ambience of travelling in one way rather than another.

iv) Public Health considerations influencing transport issues through further consideration of the relationship between the two and how this impacts on people’s daily lives within their local communities.

To proactively contribute to the well-being of individuals living and working in Hertfordshire by improving their security, personal health and fitness, and by reducing their overall risk to injury and premature death.

A key element of this in which transport has a more direct role will be through working to reduce the number of people who are killed or injured when travelling throughout the county. The fear of being injured or unsafe while travelling can also have profound impacts on people’s ability to be able to be able to access services or how they may choose to travel (or not), and may include elements such as fear of crime as they walk around their neighbourhood or their risk to injury if they were to choose to cycle.

Increased levels of physical activity as part of everyday lifestyles, such as walking and cycling more even where this may be walking to or from a station or bus stop and on to work, will have positive impacts on wider health related issues. The other main element that may present a risk to people’s health from transport is through exposure to poor air quality. The biggest health benefits that physical activity has been demonstrated to show come from reductions in heart disease, but there are also impacts on strokes and depression.

v) Reliability of the transport network in enabling people and goods to move throughout the county and the impact of bottlenecks, and the resulting congestion, on journeys.

To provide reliable and appropriately priced journeys for residents, visitors and businesses, by managing the capacity, options and demand for transport on Hertfordshire’s unique polycentric inter-urban transport network and within the city, towns and villages within it.

Delays to journeys, such as through bottlenecks where occurring on a regular basis or through incidents on the network and a lack of resilience, and not knowing how long it will take to reach a destination can cause frustration for travellers, be this a company operating around ‘just in time’ deliveries, a self-employed person on their way to a job, someone commuting to work by bus, or someone travelling by train and needing to catch a connecting service. Enabling people to be able to make trips in which they can be confident that the journey should take a set amount of time is a key part of managing to network to ensure as many people as need to use it can travel in the most efficient manner.

The polycentric nature of Hertfordshire presents a relatively unique challenge in the different demands there may be on the network for travel that may not be faced by large areas with one dominant centre. However, while there are a number of draws within the county, London is additionally a key destination for which people wish to travel to. Hertfordshire’s proximity to London not only makes it a destination for residents and businesses within the county, but only impacting on Hertfordshire as people travel through the county from other locations.
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**Transport Vision**

- **Public Health**
  - Reduce deaths or injuries
  - Reduce fear of death or injury
  - Improving health e.g. obesity levels
  - Opportunity to be healthy and safe!

- **Accessibility**
  - Ensuring people can access services

- **Reliability**
  - Providing reliable journeys
  - Expensive, cost
  - Polycentric settlement pattern
  - Managing demand for travel

- **Environmental**
  - Minimise impact on built and natural environment
  - Positively improving the environment

- **Aviation - Stansted/Luton growth**
  - Creating a transport system that encourages movement for businesses and access to markets, and similar business clusters in other areas
  - Existing new transportations will impact on built and natural environment
  - Creating a healthy built environment which is conducive to active travel for all.

- **Connectivity**
  - East-West
  - North-South
  - Golden Triangle
  - Business access
  - International markets
  - Clusters

- **Aviation - Stansted/Luton growth**
  - Creating a transport system that encourages movement for businesses and access to markets, and similar business clusters in other areas

- **Population increase**
  - Key driver for additional demand for transport

- **Global climate change**

- **Ageing population**
  - Declining people at work, but still a demand for travel to other services.
  - Free bus passes to more people means increased revenue cost to local authorities!

- **Managing growth**
  - Housing
  - Employment
  - Travel

- **Transport - Specific Challenges facing Hertfordshire**
  - Carbon emissions not on target
  - Poor air quality
    - Congestion and pinch points
  - Travel information
    - Technology/trust in information? Is it accurate?
  - Travel for people without a car/access to a car, often difficult in semi urban and rural areas!

- **Goals**
  - Managing growth
  - Managing growth - housing
    - Employment
    - Travel

- **Preserving natural and built environment of Hertfordshire amidst change**
  - Access to key services such as jobs, health, education and leisure
  - Safety and security when travelling
    - Accidents – immediate safety and security
  - Adoption and resistance to technology not only for RTI also ticketing, road safety, smart management of the network.

- **Stratification and segmentation of Society – Inequality and changing demographics**

- **Clustering**
  - Clusters

- **Carbon emissions not on target**

- **Poor air quality**
  - Congestion and pinch points

- **Population increase**
  - Key driver for additional demand for transport

- **Travel information**
  - Technology/trust in information? Is it accurate?

- **Travel for people**
  - Without a car/access to a car, often difficult in semi urban and rural areas!
How will we measure success?

Baseline figures, indicators and targets are set to ascertain whether the forward trends discussed in the Hertfordshire Transport Vision are moving towards predicted outcomes.

Indicators are also required for the Transport Vision to measure progress against the ambition. There are various topics on which the indicators can be based:

a) The five ‘drivers of change’ domains have been described by the consultants Arup as society, technology, economy, environment, and politics (STEEP). The measures of success used to determine if the Vision has been achieved could be adapted to meet these five STEEP categories.

b) The new LTP4 (when developed) will also be screened to ascertain whether it is required to undergo assessment through the Strategic Environmental Assessment (SEA) process. The topics in the SEA are clearly defined, and indicators will be set to measure whether the strategic transport schemes outlined in LTP4 are having an impact (adverse or beneficial) on environmental factors, and these will be monitored annually as required by the EU directive and UK legislation. The current LTP SEA Report has a list of topics which are outlined on page 17 of the following link - www.hertsdirect.org/docs/pdf/l/ltp3seanvrep.pdf

c) The Government is establishing the monitoring and evaluation indicators for the LEP SEP Growth Deal in partnership with the County Council and LEP, which will enable measurement of success of the schemes within the plan. This process will define a list of indicators, many of which can be used to monitor progress.

d) It has been recommended by the County Council’s transport partners (AECOM and Arup) to report on progress over short, medium and long-term time frames.

In consideration of the 4 topic areas laid out in paragraphs a – d above, it is possible to combine all four to ensure that new indicators for the Transport Vision and LTP4 address the needs of the SEA, DfT and the consultants brief.
### Developing a Transport Vision for Hertfordshire:

#### SEA topics

<table>
<thead>
<tr>
<th>Biodiversity, fauna and flora</th>
<th>Environment</th>
<th>-</th>
<th>Condition of SSSIs</th>
<th>M - L</th>
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<tbody>
<tr>
<td>Population and human health</td>
<td>Society</td>
<td>Road accidents, Active Travel Indicators</td>
<td>People killed or seriously injured in road traffic accidents, Pedestrian counts on new routes (#), Cycle counts on new routes</td>
<td>S – M – L</td>
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<tr>
<td>Air and Noise</td>
<td>Environment and Society</td>
<td>Traffic noise levels at receptor locations (dB)</td>
<td>Number of AQMA’s in Hertfordshire</td>
<td>S-M-L</td>
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<tr>
<td>Cultural Heritage and Landscape</td>
<td>Environment and Society</td>
<td>New homes</td>
<td>Housing units completed (#)</td>
<td>S-M-L</td>
</tr>
<tr>
<td>Water and Soil</td>
<td>Environment</td>
<td>-</td>
<td>River Quality length of good quality river</td>
<td>M-L</td>
</tr>
<tr>
<td>Social Inclusiveness</td>
<td>Society and Politics</td>
<td>Accessibility to developments</td>
<td>Connectivity indicators - DfT accessibility indicators</td>
<td>S-M</td>
</tr>
<tr>
<td>Economic Environment</td>
<td>Economy Technology</td>
<td>Employment, Transport Infrastructure, Congestion</td>
<td>Average journey time per mile during morning peak, Commercial floorspace constructed (sqm, by type)</td>
<td>S-M-L</td>
</tr>
<tr>
<td>Economic Environment</td>
<td>Economic Environment</td>
<td>Congestion, Active Travel Indicators</td>
<td>Day-to-day Travel Time Variability (standard deviation), Mode share (%)</td>
<td>M-L</td>
</tr>
<tr>
<td>Climatic Factors</td>
<td>Environment</td>
<td>Carbon emissions, Flooding incidents</td>
<td>Flooding - No of incidents where roads (excluding fords) and railways have been impassable for in excess of 10 hours</td>
<td>M-L</td>
</tr>
</tbody>
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7. **Next Steps**

**Responding to this document**

This stage of the process is designed to initiate a discussion around the wider challenges and transport challenges facing the county to 2050.

You can respond to this document in a variety of ways. You can provide comments in writing via our email address ltp@hertfordshire.gov.uk

The County Council will also be hosting a series of workshops and events to capture views from partners and communities.

**The longer term programme - Developing a 2050 Transport Vision for Hertfordshire**

The longer term process is outlined in Table 6.1:

**Table 6.1: 2050 Transport Vision Development Timetable**

<table>
<thead>
<tr>
<th>Stage</th>
<th>Timescale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stakeholder ‘engagement’ on the challenges</td>
<td>February 2015 to April 2015</td>
</tr>
<tr>
<td>Analysis of stakeholder engagement and development of Vision options</td>
<td>March 2015 to July 2015</td>
</tr>
<tr>
<td>Publication of Long Term Vision options to 2050</td>
<td>Summer 2015</td>
</tr>
<tr>
<td>Full Public consultation on strategic packages of interventions</td>
<td>Summer / Autumn 2015</td>
</tr>
<tr>
<td>Analysis of responses received and publication of draft Hertfordshire Transport Vision to 2050 for public consultation.</td>
<td>Early 2016.</td>
</tr>
</tbody>
</table>
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